EXHIBIT 613

UNITED STATES DISTRICT COURT OF THE
SOUTHERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION
(Pursuant to Colorado Rules of Civil Procedure,
C.R.C.P. Rule 30)

KATHY McCORNACK, et al. Plaintiffs,	)	Deposition of: KENNON JAMES HEARD, M.D.
vs.	)	
ACTAVIS TOTOWA, LLC, et al, Defendants.	)	Case No. 2:09-cv-0671

Transcript of testimony as taken by and before VALORI D. WEBER, a Certified Digital Reporter and Notary Public of the State of Colorado, at the offices of the Tucker Ellis & West, Metropoint 1, Suite 1325, 4600 South Ulster Street, Denver, Colorado, on Thursday, July 14, 2011.

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I N D E X

EXHIBITS ADMITTED

DENVER, COLORADO; THURSDAY, JULY 14, 2011

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COURT REPORTER: Today is Thursday, July 14, 2011. It is 9:16 a.m. We are in the office Tucker Ellis & West at Metropoint 1, Suite 1325 at 4600 South Ulster Street in Denver, Colorado.

This is regarding the matter of Kathy McCornack vs. Actavis Totowa, LLC, case number 2:09-cv-0671.

The deponent today is Kenneth (sic) Heard.

Counsel, if you would please state your appearance.

(Conference call being connected with Hunter Ahern.)

MR. MORIARTY: Hello.

MS. AHERN: Hey.

MR. MORIARTY: Hi, Hunter.

MR. ERNST: Good morning, Hunter.

MS. AHERN: Is everybody there?

MR. ERNST: Yes. Good morning, Hunter.

MS. AHERN: Good morning. How are you?

MR. ERNST: Fine.

MR. MORIARTY: Okay, we're just starting.

MS. AHERN: Okay. I'm going to put you on mute.

COURT REPORTER: Okay. Mr. Heard, if you'll raise your right hand, I'll -- or, wait. I'm sorry. Before we get started, Counsel, will you state your appearances.

MR. ERNEST: Don Ernst of the Ernst Law Group representing the Plaintiffs.

MR. MORIARTY: Matt Moriarty for the Actavis Defendants.

MS. AHERN: Hunter Ahern for the Mylan Defendant.

COURT REPORTER: Okay. Mr. Heard, if you'll raise your right hand, I'll swear you in.

Do you swear under the penalty of perjury the testimony you're about to give in this matter is the truth, the whole truth, and nothing but the truth so help you God?

THE DEPONENT: I do.

COURT REPORTER: Okay. Thank you.

Counsel, you may proceed.

EXAMINATION

BY MR. ERNST:

Q Would you state your full and complete name for the record?

A Kennon James Heard.

Q And you are a licensed medical doctor?
A Correct.
Q And you hold licenses in the State of California and Colorado?
A Just Colorado.
Q And, Dr. Heard, have you had your deposition taken before?
A No.
Q You've never been deposed before in your life?
A No.
Q Have you ever testified as an expert before?
A Yes.
Q And how many times have you testified as an expert?
A Around ten times.
Q And is this in the courts of Colorado?
A Yes.
Q Have you ever worked with Mr. Moriarty or his firm before?
A No.
Q And please state for me the types of cases on which you have testified.
A Those were mainly criminal cases involving patients that I treated in the emergency department.
Q And were you called by the prosecutor or the

defense?

A Generally the prosecutor.

Q And the topic of those times when you've testified, was it drug or alcohol related?

A Occasionally. It was primarily bodily -- testifying to whether or not there was serious bodily injury in criminal cases.

Q I take it in Colorado, there's some Penal Code provision about serious bodily injury and you would be the determining the factor from the medical standpoint as to whether it was serious bodily or not?

A That's correct.

Q That's the purpose of your testimony?

A That's correct.

Q Have you ever testified as a toxicologist before in your life?

A No.

Q All right. Doctor, I have been furnished with a CV and I requested today that you bring an updated CV. And if I could take the Notice that you have. And our court reporter will mark it as Exhibit 1 to this deposition. And I'm told that you have an updated CV that is somewhat different -- or, different from what was served on us at the time of your expert disclosure.

A Yes.

(Exhibit 1 was entered into evidence.)

Q Can you basically tell me what changes have been made in the last three months.

A I've added a couple -- I've had a couple of publications accepted and they've been added to the list. And I think I may have updated -- my medical license updated in -- at the end of May.

Q What publications have been added to the list?

A I'd have to look. I don't remember exactly. I update it every two to three weeks with publications.

Q Were they having to do with Digoxin?

A No.

Q Any toxicology?

A Yes.

Q General topics were what?

A Acetaminophen poisoning. There was a case -- a patient that had an acetylcysteine overdose. I think there was a couple of -- I think there was a patient that tried to commit suicide by lighting themselves on fire and taking acetaminophen.

Q All right. Doctor, because you've never been deposed before, you're aware that even though we're in informal surroundings of Mr. Moriarty's law office, that you've been placed under oath and that oath has the same force and effect as if you're testifying in

courtroom?

A Yes.

Q The court reporter will type into a booklet my questions, your answers, and you'll be given an opportunity to review and make changes. If you make changes, I or any person can ask you why you made those changes and can prove embarrassing. Do you understand that?

A Yes.

Q If I ask a question you don't understand, or I use a term that's not clear to you, please stop me and I will rephrase it, okay?

A Okay.

Q It is not my intent to ask you any trick questions. I just want to know what you think, what you know, and what -- what some of your opinions are, okay?

A Okay.

Q All right. So you have agreed to furnish us with an updated CV. And I have just a couple questions on your current CV.

I understand that you are an Associate Professor of Surgery in the Division of Emergency Medicine at the University of Colorado Denver School of Medicine; is that accurate?

A So one of the other things that would have been updated is that it is -- our department is now a Department of Emergency Medicine. We're no longer under the Department of Surgery.

Q So you are a Professor over Emergency Medicine?

A Associate Professor of Emergency Medicine.

Q And you have been so been involved in emergency medicine since 1997?

A That's correct.

Q And that is your -- primarily what you teach at the medical school?

A It's fairly evenly split between toxicology and emergency medicine.

Q And the courses you teach are what?

A I'm course director for the rotation, I guess if you will, for medical students at the Poison Center. And I participate in lecture in clinical pharmacology course where we talk about medication selection. And I am responsible, or I direct the emergency medicine student group.

Q Do you give your students reading list?

A Yeah.

Q And do you have a particular book in your course of study that you give them that relates directly to Digoxin?

A I'm sorry, I don't understand. Do you mean an article or a book?

Q A book that you use as a textbook to teach your medical students about digoxin?

A Not a single textbook, no.

Q What are the textbooks that you use in teaching the proper dosage treatment of patients with digoxin?

A So our approach is that because the textbooks are so expensive and toxicology's a relatively limited field, that I recommend they use one of the major emergency medicine or toxicology textbooks that are available usually through the library online, and I'm not sure exactly which textbook that is right now.

Q So if I were to ask you what textbook you would tell me if I were a medical student and I wanted to know something about Digoxin, what book would you tell me to look at?

A I would say that any of the major toxicology textbooks has good -- are good for Digoxin.

Q And name those for me, please.

A Goldfrank's. Marsha Ford has a textbook. Jeff Brent has a textbook that we use. We obviously use Medical Toxicology, the one that's from Dr. -- Dr. Dart edited. Those are probably the ones that we rely on the most.

Q All right. Dr. Brent's textbook is called what?

A Critical Care Toxicology.

Q And Dr. Ford's textbook is?

A I think it's called Clinical Toxicology.

Q And what is your understanding of the therapeutic level of a person that would appear in an emergency room for digoxin? What would you expect it to be?

A Well, in an appropriately timed sample in a patient taking therapeutic doses of digoxin, the range is usually -- the range that's defined as normal for the laboratory is usually .5 to 2 nanograms per ml.

Q And anything outside that range would give you cause for concern as an emergency room physician?

A It -- well, there are a lot of reasons it could be outside the range and the patient would still be -- would not be -- get sick from that. And certainly, you know, it's -- the diagnosis of digoxin toxicity is not based on a serum concentration. It's based on patient symptoms and other clinical findings.

MR. ERNST: Let's go off the record.

COURT REPORTER: Okay.

(Off the record)

Q (By Mr. Ernst) If you had an individual tested

and the digoxin level was outside the range of .5 to 2.0, it would appear as an aberration on a lab reading, true?

A It would be marked as an abnormal result.

Q Now, do you teach any specific classes with regard to toxicology?

A Well, again, the Poison Center rotation is a clinical rotation for fourth year medical students where we teach them toxicology. It's not a class in the traditional classroom sense. It's teaching medical students while we're taking care of patients.

Q Have you personally treated any patients for digoxin toxicity?

A Yes.

Q On how many occasions?

A Probably 20.

Q If I were to ask you to list the affects of digoxin toxicity to an individual, can you list the symptomatology or the affects that would take place with digoxin toxicity?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: So patients who are suffering from digoxin toxicity generally, the symptoms can vary. It depends somewhat on whether it is a single one-time

ingestion or whether it's someone who develops toxicity while taking multiple doses over time.

There are some similarities. Patients generally have nausea and vomiting. They can have changes to their vision. They generally feel weak. And then they can have -- develop cardiac irregularities like usually a slow heart rate, but sometimes -- well, slow or fast heart rate. Those would be the primary symptoms that we'd see.

Q And these symptomatologies don't all occur at the same time or in sequence, do they?

A They can occur -- I mean, generally, patients will feel poorly. When we see patients, especially with chronic toxicity, we generally -- they have more general malaise, not feeling well -- nausea and vomiting -- before they have significant cardiac affects.

Q Right. But in an emergency room setting, that's why people would come to you is because they feel ill, true?

A Yes, that's the most common reason.

Q But it is true that sudden death can occur with digoxin toxicity, true?

A Yes.

Q Now, Doctor, when a person has sudden death, please describe for me how a person dies from sudden

death -- from a cardiac ventricular arrhythmia.

A Well, as it sounds, a patient would -- their first symptom -- well, the -- then -- these are the people who pass out and essentially become unresponsive. Their heart stops suddenly. And so there's no blood flow to their brain, so they pass out and generally -- may take one or two breaths or -- but go from a living to, you know, sudden death, just like it sounds.

Q Now, I just want to talk about that. There's a terminology that you as a physician use when a person dies of sudden death, a cardiac event. What do you call it shorthand?

A I'm not sure what you're asking.

Q Well, you mentioned in your report dysrhythmia.

A Dysrhythmia, yes.

Q Now, what is dysrhythmia?

A It means the heart's not beating normally.

Q And when the heart's not beating normally, is the top half of the heart just called the --

A The atria.

Q -- the atria. It's not beating normally. Does that lead to sudden death?

A Not universally, no.

Q But if the bottom half of the heart which is

called what?

A The ventricle.

Q The ventricle. If the ventricle is not -- is in dysrhythmia, it can lead to sudden death, true?

A True.

Q Now, have you ever performed an autopsy yourself?

A I participated in an autopsy as a medical student.

Q I understand. But have you ever performed an autopsy yourself?

A No.

Q Do you sign death certificates?

A Yes.

Q And you sign death certificates of people that show up in the emergency room?

A Correct.

Q You have signed death certificates of a person -- of individuals who have died of dysrhythmia, true?

A Correct.

Q And dysrhythmia can lead to what is called cardiac sudden death or sudden cardiac death?

A Correct.

Q And sudden cardiac death, there's an acronym for it. Is it called SCD or SDC?

A Usually SCD.

Q So when we use the term SCD, we're talking about sudden cardiac death.

A Okay.

Q Now, when a person dies from SCD, please state for me what you would see in an autopsy.

A Generally, it would depend on the cause of the sudden cardiac death.

Q Okay. If the cause is dysrhythmia, what would you see?

A It would again depend on the cause of the dysrhythmia. There are some cases where a primary dysrhythmia or a secondary dysrhythmia and it would depend on what those -- or the precipitant was. You may see different things I guess with the autopsy -- on the autopsy.

Q If a person has dysrhythmia caused by digoxin toxicity, that could lead to sudden cardiac death; isn't that true?

A Yes.

Q And there would be no other symptoms other than the person would just go unconscious, true?

A That's very unlikely.

Q Would they feel tired, not feeling well?

A Generally would have some -- yes, we would

expect that they would have some what we would call non-specific symptoms. Usually, significant non-specific symptoms.

Q Well, I'm asking from a standpoint from changes in the body. If you looked at the body after death, would you be able to tell what caused the sudden cardiac death?

A Are you talking about it in the autopsy?

Q Yes.

A You wouldn't see necessarily structural abnormalities in the heart or in the body in the case of digoxin poisoning.

Q And digoxin toxicity is consistent with sudden cardiac death, isn't it?

MR. MORIARTY: Objection; form and otherwise.

Go ahead.

THE DEPONENT: Well --

MR. ERNST: He's made an objection. That's for a court to decide later.

THE DEPONENT: Sure.

Q (By Mr. Ernest) And the question is out there. I'll have the question re-read and then I want you to answer the question.

A Okay.

MR. ERNST: Would you repeat the question?

COURT REPORTER: Uh-huh.

(The last question was played back by the court reporter.)

THE DEPONENT: So I'm -- well, the way the question's phrased is difficult for me to answer. I would say that a patient who has digoxin poisoning could have sudden cardiac death.

Q (By Mr. Ernst) Okay. Now, let's go back and go through a number of items that I just want to make we've covered and then we're going to come back to that issue.

A Okay.

Q You have read and reviewed material in preparation for rendering opinions in this case, true?

A Yes.

Q And have you produced your entire file here for me today?

A Yes.

Q Now, one of the things that you produced was a six-page document -- five-page document, it's double sided.

When it's copied, I'd like you to make it into single pages --

COURT REPORTER: Okay.

MR. ERNST: -- so that it's easily readable.

Q (By Mr. Ernest) In looking at your -- this document, we're going to mark this as Exhibit 2. Does Exhibit 2 contain your thoughts and opinions?

A Yes.

(Exhibit 2 was entered into evidence.)

MR. MORIARTY: Objection.

Q (By Mr. Ernst) Doctor, did anyone assist you in writing that?

MR. MORIARTY: Objection. You don't have to answer that under new Rule 26, you don't get into drafts.

Q (By Mr. Ernest) Did you discuss with Mr. Moriarty the contents of Exhibit 2 before it reached its final point?

A Yes.

Q Did Mr. Moriarty suggest any changes?

MR. MORIARTY: Objection.

I'll let you answer that.

THE DEPONENT: Yes.

Q (By Mr. Ernst) What changes did he suggest?

MR. MORIARTY: Objection.

You don't have to answer that.

MR. ERNST: I believe that he does.

MR. MORIARTY: No, he doesn't. Rule 26 specifically says you have nothing -- you have no

access to drafts. You can't ask him about drafts.

Q (By Mr. Ernest) I'm not asking about a draft; I'm asking what suggestions Mr. Moriarty's made or gave you in Exhibit 2.

MR. MORIARTY: Objection.

You do not have to answer that question.

Q (By Mr. Ernst) All right. Please state for me what your understanding is of why you were retained in this case.

A So my understanding, I was retained to review the case and to determine if there was any evidence that Mr. McCornack had digoxin toxicity and if that was likely the cause of his death.

Q And I'm going to show you what's been marked as Exhibit 3 and 4. Are these letters that you received from Mr. Moriarty in that regard?

A Yes.

(Exhibits 3 and 4 were entered into evidence.)

Q Now, please state for me what you reviewed -- I don't see a list of what you reviewed in the formulating of your opinions as they are listed on Exhibit 2.

A So you're asking what the material that's in the room that I reviewed for the --

Q Yes.

A Okay. So I reviewed the provided medical records, the depositions, the -- and then the literature that I provided for you.

Q Let me go back here. Mr. Moriarty has opened a letter that has been marked as Exhibit 3. And they include the office records of Dr. Lemm; the office records of Dr. VonDollen; the original autopsy and death certificate; the "amended" autopsy and death certificate; reports from the NMS Laboratories regarding Mr. McCornack's blood and Digitek® tablet tests; the deposition transcripts of Drs. Mason, Lemm and VonDollen; the deposition of Matthew McMullin. Is there anything else that you reviewed?

A I think the deposition of his wife.

Q Kathy McCornack?

A Yeah. And the deposition of Mr. -- or, the pharmacist.

Q Mr. Gibson -- Dr. Gibson?

A Yeah, Dr. Gibson.

Q Now --

MR. MORIARTY: And for completeness, if you want me to chime in, there are a couple things at the back of this that are not -- that may be referred to in the letter somewhere else, such as a letter from CVS to the McCornack family.

MR. ERNST: Can I look at that, please?

MR. MORIARTY: You may. And then the 2009 FDA web statement. The CVS thing's the tab before.

Q (By Mr. Ernst) All right. Now, this black binder, was this prepared by you, Doctor?

A No.

Q So this was given to you?

A Yes.

Q I'm going to mark this entire black binder as next in order, 5. So Exhibit 5 was given to you by Mr. Moriarty?

A Yes.

(Exhibit 5 was entered into evidence.)

Q Is this, as far as you know, a true and accurate -- you haven't made any changes or taken anything out of that folder, have you?

A No.

Q I would like you to go to the yellow tabs.

A Okay.

Q What are the yellow tabs?

A The first one is a serum digoxin concentration measured in March of 1995.

Q What was that serum digoxin level?

A 1.4 NG/ML.

Q Okay. What's the next -- I'll let you have

that.

A Serum digoxin concentration measured on August 1, 2001.

Q And what was that level?

A 1.7.

Q And what's the next yellow marker?

A Well, it's serum chemistry and digoxin concentration measured November 2002.

Q And what is that level?

A 1.5.

Q What's the next yellow marker that you have there?

A Serum cholesterol, digoxin concentration, and thyroid studies.

Q And what's the date of that?

A February 2004.

Q And what's the digoxin level?

A 1.8 NG/ML.

Q What's the next marker?

A It's blood CBC and metabolic panel, digoxin concentration, and a PSA from it looks like July 2006.

Q And what is that level?

A 1.5.

Q And what's the last yellow tab that you have there?

A So metabolic panel, TSH, lipid panel, and digoxin concentration from May 2007.

Q And what is that level?

A 1.6 grams per milliliter.

Q Now, I'm going to mark as Exhibit 6 these sheets that I think are copies of all of those yellow sheets. They're sort of in order for easy reference. Let's mark those as Exhibit 6. I just want to make sure that you take a look at them and agree that I pulled those out of Exhibit 5 just for ease of review.

A One, two -- yeah.

(Exhibit 6 was entered into evidence.)

Q Are they accurate?

A Yes.

Q Now, did you do a -- did you see the post-mortem or after-death blood sample taken from NMS Labs?

A Yes, I have.

Q And can you go to that place for me? That's in the Exhibit 5 as well. And that sample was drawn after death?

A Yes.

Q It was drawn in -- March 23, 2008?

MR. MORIARTY: Objection.

Q (By Mr. Ernst) Sorry. March 27, 2008.

A I have the date on here as received on

March 28, so I --

Q We'll just go with received on March 28. And what's that digoxin level?

A 3.6 nanog/mL.

Q I'm going to mark next in order -- now, Doctor, were you aware that after Mr. McCornack died there was a recall?

A Yes.

(Exhibit 7 was entered into evidence.)

Q And how did you become aware of that?

A Well, I recall the recall when I was -- as a part of my job, I received a letter, and as part of -- at the Poison Center, we had -- we were aware of it.

Q At the Poison Center, did anyone call in about digoxin toxicity that you're aware of?

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: I'm sure there were people that called in about digoxin toxicity. We routinely get those calls.

Q (By Mr. Ernst) Do you keep a log of those calls at the Center?

A Uh-huh.

Q Is that a yes?

A Yes. I'm sorry, yes.

Q If I were to go to the Center and ask for the log of the calls, would I be able to get them if I issued a subpoena?

MR. MORIARTY: Objection.

THE DEPONENT: I don't know.

Q (By Mr. Ernst) Did you ever do a review of the number of calls that came in about digoxin toxicity after the recall?

A I did not.

Q Have you bothered to look about -- at that at all, the number of people at the Poison Center that had -- were concerned about digoxin toxicity after the recall?

MR. MORIARTY: Objection.

Go ahead.

MS. AHERN: Objection.

THE DEPONENT: Not -- at our Poison Center, no. I don't have any -- I don't recall. Someone may have looked at it, but I did not.

Q (By Mr. Ernst) It's been represented that you got a copy of the letter that was sent to Mr. McCornack in part of Exhibit 5 that's in the CVS Caremark Recall Letter. Do you see that?

A Yes.

Q And have you been shown any other document

other than this one labeled "Dear Plan Participant"?

MR. MORIARTY: Objection. About what?

MR. ERNST: About the recall.

MR. MORIARTY: Oh, okay.

THE DEPONENT: I'd have to -- I don't recall it off -- there may be one in the rest of the records, but I don't recall.

Q (By Mr. Ernst) But this was furnished to you by Mr. Moriarty?

A Correct.

Q So I'm going to mark next in order, number 8. Why don't you look at number 8, which is a letter directly addressed to Mr. Daniel McCornack. Have you ever seen that letter before?

A I don't recall.

(Exhibit 8 was entered into evidence.)

Q So the answer is no; you don't remember seeing that, do you?

A I don't remember seeing that.

Q That letter is addressed directly to Mr. McCornack, isn't it?

A Yes.

Q It talks about double strength tablets, doesn't it?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: It talk -- it says "double thickness and could contain twice the approved level of active ingredient."

Q (By Mr. Ernst) Doctor, as a toxicologist, having sworn and being under oath, you will acknowledge that digoxin has a very narrow therapeutic value, true?

A I'm not familiar with that term. Is the term you're looking for a therapeutic window?

Q Therapeutic window's a better term.

A Digoxin is considered a drug with a narrow therapeutic window or therapeutic index.

Q And if a person that was taking .25 milligrams of digoxin was suddenly to take a double dose pill, it could result in the symptomatology that you've listed, including --

MR. MORIARTY: Objection.

MR. ERNST: -- including nausea, change in vision, unconsciousness, and sudden death, or any of those, true?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: Are you asking if a person took one additional dose of -- for example, a person taking .125 milligrams took a .25 milligram dose?

Q (By Mr. Ernst) No. A person is taking .25 milligrams --

A Okay.

Q -- morning and evening.

A Okay.

Q Have you ever heard of anyone being recommended any more than that, .25 in the morning and evening?

A No.

Q That's the maximum dosage, true?

A I think that may be even higher than most recommend.

Q So if a person ingested a double strength tablet, it could lead to digoxin toxicity, true?

MR. MORIARTY: Objection; form.

MS. AHERN: Objection.

MR. MORIARTY: Go ahead.

THE DEPONENT: If you're -- are you asking a single person on a steady dose took a single double dose, would they get sick? Is that what you're asking me?

Q (By Mr. Ernst) Would any of the symptomatologies that you have mentioned as occurring, whether it's nausea, feeling poorly, feeling tired, feeling bloated, or an arrhythmia take place?

MS. AHERN: Objection.

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: It is unlikely that a single double-dose tablet would cause symptoms in a patient taking chronic digoxin poisoning.

Q (By Mr. Ernst) When you say it's unlikely, that means you're not willing to rule it out, are you?

A It's very unlikely.

MR. MORIARTY: Objection; form.

Q (By Mr. Ernst) You're not willing to rule it out, are you?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: Completely, no.

Q (By Mr. Ernst) Now, this document is addressed to Mr. McCornack, and it basically states that he received the material -- the recalled batches of Digitek. Do you see that?

A Yes.

Q And have you ever been advised that Mr. McCornack had received the recalled batches of Digitek?

A That was in the documents that I received, yes.

Q You were aware of that?

A Yes.

Q Now, can you state what tablets -- well, strike that.

The tablets that Mr. McCornack took, he ingested and were dissolved in his body, true?

A Yes.

Q So as we sit here today, you can't say what tablets he took before he died, can you?

A No.

Q So you don't know what tablets he took before he died, do you?

A No.

Q And you don't know if they were double strength, do you?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: No.

Q (By Mr. Ernst) And as you sit here today, they could have been double strength based on this literature that you received notice that that's possible; isn't that true?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: Yes.

Q (By Mr. Ernst) Now, one of the things that this deposition is designed to do, Doctor, is to make

sure that at the time of trial, you don't come up with any outlandish opinions and you don't say anything that you haven't -- that you haven't told us about, okay.

So we've marked as Exhibit 2 your opinions and conclusions. And have you reviewed those with Mr. Moriarty today?

A Yes.

Q Got any changes for me, or are those basically the opinions that you expect to render at the time of trial in this case?

A These are the opinions I would render at trial.

Q Now, I want you to list for me the articles that are here. Now, did you -- this stack of articles, are these the ones that you have read and reviewed in preparation for your deposition here today?

A Uh-huh, yes.

Q Yes. And where did you get these documents?

A These are articles that I reviewed and some of them I reviewed for when I wrote the book chapter, others I had reviewed in the course of teaching the toxicology fellows.

Q What book chapter did you write?

A I wrote the chapter on digoxin poisoning in Dart's Medical Toxicology.

Q Have you ever studied what happens to the blood

level of digoxin after a person dies?

A Can you clarify what you mean by studied?

Q Sure. Have you ever done any studies yourself?

A No.

Q Have you reviewed any articles that talk about redistribution of digoxin after death?

A Yes.

Q And are those articles included in your list of materials there?

A Yes.

Q So let's point out the ones for me. Let's just take these out. Are these all the articles that you've pulled off the Internet, or pulled out of books?

A Yeah.

MR. MORIARTY: Objection.

Q (By Mr. Ernst) All right. Can you just list them for me?

A How do you want them listed?

Q Just list the title and the author.

A Estimating antemortem drug concentrations from postmortem samples: the influence of postmortem redistribution. Cook is the first author.

Q In that article, did they have pre-death blood levels?

A In some cases.

Q Okay. Let's mark this entire stack as the next exhibit, which is 9, okay. Just have the entire stack marked. Well, we'll just save ourselves some time.

(Exhibit 9 was entered into evidence.)

This entire stack of Exhibit 9 are the articles that you have read and reviewed --

A Yes.

Q -- true? Now, Doctor, have you reviewed Vorphal's article with Coe?

A Yes.

Q Is that included in that list?

A It should --

MR. MORIARTY: Is it included in that stack?

MR. ERNST: Yeah, Exhibit 9.

THE DEPONENT: Yes.

MR. ERNST: I want to --

MR. MORIARTY: Buy you a stapler for Christmas.

MR. ERNST: All right. I'll take this so we won't --

Q (By Mr. Ernst) Now, if you go to the conclusion of that article -- do you see it there?

A Uh-huh.

Q It actually talks about postmortem serum digoxin levels and being able to compute antemortem ratio of what blood sample is. Do you see that?

A Yes.

Q All right. Now, Doctor, the blood sample that was taken on Mr. McCormack, was it a peripheral sample?

A It was -- the subclavian vein is difficult to categorize this peripheral central. I don't think there's a clear definition for that.

Q Well, were you aware that -- you read Dr. Mason's deposition?

A (Deponent nods head)

Q You're aware that he -- is that a yes?

A Yes, sorry.

Q Are you aware that he cut the vein and then pushed the blood out from the wrist down the arm and collected that blood?

MR. MORIARTY: Objection.

THE DEPONENT: That's how -- yeah, that's how he reported doing it.

Q (By Mr. Ernst) That would be a peripheral blood sample, true?

A My concern would be that it's very difficult to be certain that there -- the amount of blood that he took, that it all came from the arm forward and there was no contamination with blood from the subclavian or with blood from the superior vena cava.

Q Have you ever called and asked him about it?

A No.

Q Now, Doctor, if you assume that it's a peripheral view -- peripheral blood to assume that, and you take the 3.6 level -- by the way, a 3.6 would be considered toxic if the person were alive, true?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: Its toxicity is a clinical diagnosis. It's considered supratherapeutic.

Q (By Mr. Ernst) It would give you concern as an emergency room physician if you saw a digoxin level of 3.6.

MS. AHERN: Objection.

THE DEPONENT: It would depend on the patient. I would go and see if the patient had symptoms of digoxin poisoning.

Q (By Mr. Ernst) You would absolutely go check that patient, true?

A Yes.

Q And you would be looking for that array of symptomatology talked about, whether it's change in vision, or nausea, tiredness. What about bloating?

A Bloating is a non-specific term. If they had GI distress, that -- that's a symptom of digoxin poisoning.

Q Have you ever heard GI distress termed as bloating?

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: Sure, yes.

Q (By Mr. Ernst) All right. Were you aware that Mr. McCornack complained of that on the day of his death?

A Yes, he noted that.

Q And if you assume that there's a 3.6 after death serum digoxin level, using the study that Vorphal and Coe did, you can compute the blood level before death of Mr. McCornack, and it would be above 2.0, wouldn't it?

A I wouldn't do that calculation.

Q Well, I'm not asking if you would do the calculation, I'm asking if you followed the study that was done by Vorphal and Coe in 1978 that if you did that, it would be -- it would come out with a pre-death level well above 2.0. Isn't that true?

MR. MORIARTY: Objection.

Go ahead.

MS. AHERN: Objection.

THE DEPONENT: The calculated concentration using the point estimate that they provide is higher,

the range when you look at the other samples that they had, the 3.6 is well within the range of other values.

Q (By Mr. Ernst) Doctor, if you compute using the formula given by Vorpo (ph) -- Vorphal and Coe in the 1978 study, if you take that 3.6 level and you compute it back to the studies and the documented chart that they provide you with, Mr. McCornack's blood level would be above 2.0 for serum digoxin. Isn't that true?

MR. MORIARTY: Objection.

THE DEPONENT: What chart are you referring to?

Q (By Mr. Ernst) I'm referring to the summary of Vorphal and Coe where there's a ratio postmortem to antemortem.

MR. MORIARTY: Don, all he's asking is are you referring to the graphs in the article or the very end, the summary?

MR. ERNST: I'm referring to the summary.

MR. MORIARTY: Okay. Thank you.

Objection.

Go ahead.

THE DEPONENT: So I would refer to Table 2 where the 1.63 plus or minus .48 is noted. And if you include the variation in the 1.63 plus or minus 1.48 as they do in the table, there's a wide range of values. 1.63 is one value, but there's a range where you would

expect potentially their reported values to be.

Now, I would also point out that there -- they have no information on someone on a sample obtained 72 hours postmortem, so I'm not sure that these results would even be applicable.

Q (By Mr. Ernst) Do you have an opinion on blood sample taken 72 hours in the normal course of an autopsy about the affect of postmortem redistribution of digoxin?

A There's no available information that I'm aware of about the affects of -- or what we would expect it to be.

Q All right. In summary, coming back, ventricular fibrillation can be caused by digoxin toxicity, true?

A Yes.

Q And that is a cause of sudden death, true?

A Yes.

Q And that is consistent with digoxin toxicity, true?

MR. MORIARTY: Objection; form and otherwise.

Go ahead.

THE DEPONENT: Yes.

Q (By Mr. Ernst) And, in fact, if a person had a blood level of 3.6 after death using the Vorphal and

Coe article, it is reasonable that Mr. McCornack's blood level before death was well above 2.0; is that true?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: Are you asking if it's probable?

MR. ERNST: I'll have my question re-read.

(The last question was played back by the court reporter.)

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: It's possible that his blood level was.

Q (By Mr. Ernst) Now, one of the medical opinions that you have that's on Exhibit 2, and I welcome you to go ahead and feel free to review any of these.

A Okay. Hang on a second. This is all mixed up.

Q First of all, item one, your medical opinion is: "There is no evidence that Mr. McCornack was exposed to excessive doses of digoxin either acutely or chronically." Do you see that?

A Yes.

Q Now, at the time that you wrote that, you did not have access to the letter written specifically to

Mr. McCornack pointing out that the -- the Digitek that he received could be double strength. You didn't have that, did you?

A I did not.

MS. AHERN: Objection.

Q (By Mr. Ernst) Now, in truth in fact, that letter, Exhibit 8, is evidence that Mr. McCornack was exposed to excessive doses of digoxin, isn't it?

MR. MORIARTY: Objection.

THE DEPONENT: No.

Q (By Mr. Ernst) It's evidence that he could have been exposed, wouldn't you agree?

MR. MORIARTY: Objection.

Go ahead.

MS. AHERN: Objection.

THE DEPONENT: Yes.

Q (By Mr. Ernst) All right. And, in fact, the blood level after death and having a blood level greater than .20 is consistent with being exposed to an excessive dose of digoxin, isn't it?

MR. MORIARTY: Objection.

THE DEPONENT: Do you mean 2.0?

Q (By Mr. Ernst) Above 2.0.

A I'm sorry. Can you restate the question?

Q Sure. Looking at the evidence that we have of

a postmortem blood sample of 3.6 after death, blood sample of 3.6, looking at the articles that you've read, working backwards, it is certainly within reason that Mr. McCornack, if he had been exposed to an excessive dose of digoxin, the blood levels that are exhibited after death would be consistent with that, true?

MS. AHERN: Objection.

MR. MORIARTY: Objection.

THE DEPONENT: The blood levels are consistent with a wide range of antemortem digoxin concentrations. I cannot say that the level of 3.6 is consistent with excessive dosing.

Q (By Mr. Ernst) You can't say it isn't.

MR. MORIARTY: Objection.

MS. AHERN: Objection.

MR. MORIARTY: Form.

Go ahead.

THE DEPONENT: I can't say that it is not.

Q (By Mr. Ernst) And, in fact, looking at Exhibit 7, which are all the lists of the blood samples for Mr. McCornack -- I'm sorry, Exhibit 6 -- over a ten-year period, they were all between 1.4 and 1.8. Isn't that true?

A Yes.

Q He never had a level bigger than 2.0, did he?

A Not that I'm aware of.

Q Item number two, as you state, "Mr. McCornack had no symptoms of digoxin toxicity prior to his cardiac arrest." Do you see that?

A Yes.

Q We've already established that -- well, strike that.

Were you aware that he reported to his wife that he was tired on the day that he died?

A I don't recall that in her deposition.

Q Do you recall that he said he was bloated on the day before he died -- evening that he died?

A I recall her mentioning that he said she was bloated.

Q We've already established that bloating is a lower GI tract term that some people use for distress, true?

A For a type of distress.

Q And a lower GI tract distress is consistent with digoxin toxicity, isn't it?

MR. MORIARTY: Objection.

THE DEPONENT: Digoxin toxicity generally is more nausea and vomiting. Bloating is not commonly associated. I mean, GI distress can range from

abdominal pain to nausea to vomiting to heartburn. And I would -- so I would say in terms of the symptoms that I would expect with digoxin poisoning, bloating would not be one of the symptoms that commonly is used to describe a patient with digoxin toxicity.

Q What about fatigue?

A Fatigue can be.

Q Now, you make your statement that Mr. McCornack had no symptoms, and in truth in fact, in the deposition of Kathy McCornack, she stated that he was fatigued. Do you recall that?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

MR. MORIARTY: Form.

Go ahead.

THE DEPONENT: Mr. McCornack had a very active day the day that he died. I don't look at that and see any symptoms that suggest that he was -- had malaise, had nausea, had symptoms of digoxin poisoning.

Q (By Mr. Ernst) Let's look at Kathy McCornack's deposition in your materials here. I pulled that out of your materials, right? Looking at page 108, do you see it said, "Did your husband often feel tired recently?"

"Yes."

"When you say recently, I mean recently just prior to his death?"

"Yeah."

"There's references in the medical record to him feeling consistently."

"Yeah."

"Over a pretty long period of time," by Mr. Moriarty.

The answer is, "Yeah, but it was more than usual."

Do you see that?

A Okay.

Q Now, that is consistent with a person that's experiencing digoxin toxicity; isn't that true?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: It's a non-specific symptom that seems very vague to me.

Q (By Mr. Ernst) It's consistent.

MR. MORIARTY: Objection; form.

MS. AHERN: Objection.

MS. ERNST: I'll rephrase it.

Q (By Mr. Ernst) When you state that there's no symptoms of digoxin toxicity, that's not entirely accurate based upon the deposition that I just read to

you. Isn't that true?

A I would not interpret that as suggestive of digoxin toxicity.

Q Well, how would you interpret it?

A Well, looking back on the record, she's complained fatigue many other times when he'd gone to visit people. Generally, when we talk about someone with digoxin toxicity, we're looking at people who are, you know, fatigued, malaised, they're laying around the house. They're someone who's clinically feeling poorly, not someone who's out setting up a camp, being active throughout the day.

Q What about vision? Did you ever mention -- do you remember him saying something about vision?

A Not specifically color vision. I'd have to go back again and look, but I don't remember that being prominently mentioned.

Q Now, page 111 --

MR. MORIARTY: Oh, I'm sorry, I thought you were done.

Q -- specifically talks about his vision. Do you see that?

MR. MORIARTY: Are you referring to Kathy's deposition?

MR. ERNST: Yes.

MR. MORIARTY: Thank you.

Q (By Mr. Ernst) He had changes in his vision. Do you see that?

A Uh-huh.

Q It's page 111?

A Uh-huh.

Q Now, changes in vision are consistent with digoxin toxicity, aren't they?

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: As I note in my report, changes in color vision are a symptom of digoxin poisoning.

Q (By Mr. Ernst) He said his vision was different. Do you recall that?

A In the -- he said there's something -- yeah, something with his eyes in the deposition, yes.

Q Now, let's talk about a lethal arrhythmia. The truth, in fact, a lethal arrhythmia can be caused by digoxin toxicity, true?

A True.

Q And there are occasions that you are aware of in the medical literature where a person who's suffering from digoxin toxicity begins irregular heartbeat, feels tired, passes out, and dies, true?

A That would happen with other symptoms. I

wouldn't expect that to be someone who was well and then suddenly developed arrhythmia. The course of chronic digoxin poising is --

Q Well, you mentioned two types: one is chronic digoxin toxicity poisoning and the other is acute poisoning, right?

A Right.

Q If a person takes more than the dose that one would expect, they could suffer acute digoxin poisoning, right?

MR. MORIARTY: Objection.

THE DEPONENT: If they took a single large dose or if they took a large dose, they could develop acute digoxin poisoning. The range that we're talking about in this case would not be expected to cause acute digoxin poisoning.

Q (By Mr. Ernst) Do you have a physician/patient relationship with Mr. McCornack?

A No.

Q You were hired by whom?

A Mr. Moriarty.

Q And the purpose that you were hired was to render opinions about whether or not Mr. McCornack had digoxin toxicity?

A Correct.

Q How often do you think a person should be checked -- have their blood checking for digoxin, assuming they're taking it on a regular basis?

A I don't have an opinion on that.

Q Once a year?

A I don't have an opinion.

Q You're aware that postmortem tests can be done for digoxin?

A Yes.

Q What's the purpose of those tests?

A As a toxicologist, I would use that test to identify digoxin as whether there was a digoxin exposure or not. It would be very useful to know someone were supposed to be taking digoxin and there were no digoxin present.

Q It's also useful to note if the digoxin level's above 2.0; isn't that true?

MR. MORIARTY: Objection.

THE DEPONENT: I would not interpret a postmortem digoxin concentration in that way. There's not, that I'm aware of, a therapeutic range for postmortem digoxin concentrations.

Q (By Mr. Ernst) The literature says you can work backwards, true?

MR. MORIARTY: Objection.

THE DEPONENT: I'm -- actually, the literature says specifically that you shouldn't, and I would not -- based on my understanding of the literature and my review of it, I would not attempt to work backwards from a postmortem concentration. And in particular, with this case, 72 hours is outside of the range of what is reported in that study.

Q (By Mr. Ernst) Now -- reserve a motion to strike -- looking at the -- well, do you believe there's postmortem redistribution of digoxin?

A Yes.

Q What about diltiazem?

A The evidence is less strong, but I believe it's very likely.

Q So do you have an opinion of whether or not there's a postmortem redistribution of diltiazem or do you just want to defer on that?

A Yes. I believe there is postmortem redistribution.

Q To what degree?

A I don't believe that the exact -- the degree for -- well, for -- really for either of these is at the level where it can be quantified. I think we can say that it increases in most cases, diltiazem.

Q What risk factors did Mr. McCornack have from a

cardiac standpoint? You're an ER doc, tell me what his risk factors were.

MR. MORIARTY: Objection. Risk factors for what?

MR. ERNST: For a heart event -- cardiac event.

THE DEPONENT: So the main risk factors that we would consider in someone, for example, presenting with chest pain, which would be a little bit different, but we usually talk about events, or risk factors such as high blood pressure, previous coronary artery disease, tobacco use, male age greater than 40, family history, diabetes.

And then are you asking in his specific case or?

Q (By Mr. Ernst) Sure, yeah.

A So he also had -- he was overweight and he had -- I mean, he had an abnormal heart. He had atrial fibrillation.

Q Now, those are all risk factors that he had, true?

A I don't recall family history or diabetes and --

Q Let's go through them.

A Okay.

Q Did he have chest pain the day he died?

A None reported.

Q Did he have high blood pressure?

A He's characterized as having high blood pressure by two of his treating physicians and had several high blood pressure -- or blood pressure measurements that were elevated.

Q What about primary artery disease?

A He had some coronary artery disease.

Q Not major, but some?

A Well, he had coronary artery disease. And, in fact, coronary artery disease in and of itself is -- I mean, he had coronary artery disease.

Q What about tobacco use?

A He chewed tobacco.

Q What about family history? Was chewing tobacco, will that create the risk?

A It is considered a risk factor.

Q What about family history?

A I don't recall that being documented.

Q What about diabetes?

A No.

Q What about any renal or kidney issues?

A Well, we had hadn't seen any kidney tests on him for a year, but he had none at the last -- time of his last visit.

Q So concerning those factors, wouldn't it be consistent that if a person were exposed to a double dose of digoxin that his risk of a sudden cardiac death event would increase?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: I don't think you can -- I can't say that, no.

Q (By Mr. Ernst) You can't say that he didn't.

MR. MORIARTY: Objection.

MS. AHERN: Objection.

Q (By Mr. Ernst) Is that true?

A I'm sorry, I can't say that it didn't.

Q You can't say that it didn't.

MR. MORIARTY: Objection; form.

THE DEPONENT: I have no -- no.

Q (By Mr. Ernst) Now, one of the things that you did mention is that in item six, you mention that in your opinion to a reasonable degree of medical probability, Mr. McCornack died of dysrhythmia. Is that true?

A Dysrhythmia caused by myocardial fibrosis, atrial fibrillation, yes.

Q Yes. Now, if you just take that sentence, that sentence is consistent with digoxin toxicity, isn't it?

MR. MORIARTY: Objection; form.

MS. AHERN: Objection.

THE DEPONENT: The fact that he died?

Q (By Mr. Ernst) The fact that he died of dysrhythmia caused by myocardial fibrosis and atrial fibrillation. That --

A Can you restate the question?

Q Sure. I want you to assume that Mr. McCornack had digoxin toxicity, okay? Just assume it.

A Okay.

Q And he died. Okay?

A Okay.

Q And he died of dysrhythmia caused by myocardial fibrosis and atrial fibrillation. Do you see that?

A Uh-huh. Okay, yes.

Q Well, let's just --

A Yes.

Q -- let's just rephrase it. Let's just -- he had digoxin toxicity and he died of dysrhythmia.

A Okay.

Q Death caused by dysrhythmia as a result of digoxin toxicity is a known risk factor, true?

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: I'm sorry, that's --

Q (By Mr. Ernst) I'll go back. Let's start over. Can you state for me what you believe when you say there's no convincing evidence that Mr. McCornack received excessive doses of digoxin? What do you me by that?

A I mean that he took -- there's no evidence that he took extra pills. There's no history that suggests that. That he had no symptoms prior to his death that would suggest to me that he was digoxin toxic.

Q In fact, his wife said he was fatigued?

MR. MORIARTY: Objection.

MR. ERNST: That is not -- it doesn't bother you?

MR. MORIARTY: Objection.

THE DEPONENT: He had been fatigued.

MR. MORIARTY: Asked and answered.

Go ahead.

THE DEPONENT: He had been fatigued for a long time leading up to this and I didn't see anything in his behavior that suggested -- again, with digoxin toxicity, I would expect someone to be quite fatigued, not out doing the activities that he was doing throughout the day. I would expect him to be nauseated, not eating a large meal, having some beer in the afternoon, that kind of thing.

Q (By Mr. Ernst) What if he took a double dose table at dinner that night?

A I wouldn't expect that to be a problem.

Q You wouldn't expect it to be a problem, but you can't rule out the fact that that could cause digoxin toxicity leading to dysrhythmia, can you?

MR. MORIARTY: Objection; form.

THE DEPONENT: A single double dose is not going to produce toxicity.

Q (By Mr. Ernst) That's your testimony?

A It's -- it's -- I mean, it's within -- I mean, again, it's very, very, very unlikely. That's not what we -- it's not a medical probability that a single dose is going to cause toxicity in someone. It's outside of what is a reasonable medical opinion.

Q Now --

MR. MORIARTY: I'm ready for a break, so whenever it's convenient.

MR. ERNST: A couple more questions and we'll take a break.

Q (By Mr. Ernst) Doctor, would you acknowledge that the risk factors that you mentioned for Mr. McCornack also increase his risk of digoxin toxicity?

A Structural heart disease -- yes, structural

heart disease. Not -- I mean, not all of them, but certainly structural heart disease is a risk factor for digoxin toxicity.

Q In other words, Mr. McCornack was at greater risk for digoxin toxicity?

A Yes.

Q And the pathological findings that one would expect for sudden cardiac death are the same as for sudden cardiac death as a result of Digitek poisoning, true?

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: I'm sorry. Can you -- so you're ask -- can you clarify that?

Q (By Mr. Ernst) Sure.

A You mean --

Q In sudden cardiac death, ventricular tachycardia is generally the reason that someone dies, agreed?

A Yes.

Q Now, ventricular tachycardia can be caused by Digitek poisoning, isn't that true?

A Yes.

MR. ERNST: We will respect Mr. Moriarty's request for a break.

COURT REPORTER: We're off the record.

(Off the record)

Q (By Mr. Ernst) Doctor, one of the reasons I'm taking your deposition is to make sure that I have the opinion that you expect to render at the time of trial. There are no surprises.

A Okay.

Q So is it your testimony that on Exhibit 2 -- this is the report that was drafted by you --

A Uh-huh.

Q -- with Mr. Moriarty's help is -- contains everything that you're going to testify about at the time of trial.

MR. MORIARTY: Objection.

Q (By Mr. Ernst) Your opinions, true?

A Yes.

Q Do you have any opinions that are not contained in Exhibit 2 that you expect to render?

A Not that I expect to render.

Q Well, now is the time because I want to make sure that when you get on the witness stand that you don't have some other opinion that's not reflected in this document, okay?

A Okay.

Q Now, you mentioned that the coroner amended the

death certificate to list digoxin poisoning as a cause of death based upon digoxin concentration. Do you see that?

A Yes.

Q Diltiazem was not listed as a cause of death. Do you see that?

MR. MORIARTY: Objection. Where?

MR. ERNST: It's in your opinions, item 4.

MR. MORIARTY: Oh, okay.

Q (By Mr. Ernst) Now, looking at Exhibit 7, if you'd take a look at that.

A Uh-huh, yes.

Q Do you see that?

A Yes.

Q There's a note in here about diltiazem. Do you see that?

A Yes.

Q And it says that for diltiazem to be related to death must -- the blood concentrations postmortem must range from 6,700 to 33,000. Do you see that?

MR. MORIARTY: Objection.

THE DEPONENT: It doesn't say must range.

Q (By Mr. Ernst) It says in a separate -- there's a quote from the NMS Labs. It says, "In a separate, small series of diltiazem related fatalities,

the postmortem blood concentrations range from 6,700 to 33,000 nanog/mL." Do you see that?

A Yes.

Q Now, that is a huge increase in what is reported in Mr. McCornack after death. Do you see that?

A Yes.

Q Now, do you have an opinion as to whether diltiazem was a cause and a factor of Mr. McCornack's death?

A I --

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: I do not.

Q (By Mr. Ernst) Speaking of causative factors, would you ever render an opinion on a patient unless you'd seen him?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: I don't understand what you're asking.

Q (By Mr. Ernst) With regard to a treatment, would you render opinions on particular patients without seeing them or having any clinical analysis?

MR. MORIARTY: Objection.

THE DEPONENT: If you're asking if I'd treat a patient with no information, the answer is no.

Q (By Mr. Ernst) Now, the coroner has the duty to determine the cause of death, true?

A Yes.

Q And in this particular case, the coroner amended the death certificate to list digoxin poisoning as a cause of death.

A Yes.

Q You're aware of that. Now, you didn't perform the autopsy, did you?

A No.

Q You didn't look at the heart, did you?

A No.

Q You didn't take the blood sample, did you?

A No.

Q And you didn't review the medical records at the time -- well, you didn't review all of his medical records either, did you -- Mr. McCornack?

A I reviewed the provided --

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: -- the medical records that were provided. I don't know if that's all of his medical records.

Q (By Mr. Ernst) With regard to a cause of death, you would defer to the coroner in a legal sense, wouldn't you?

MR. MORIARTY: Objection.

THE DEPONENT: I would advise the coroner if there is a toxicological issue, but I would -- but I don't -- you know, I wouldn't -- well, I would advise them if there was a toxicological cause of death.

Q (By Mr. Ernst) In truth in fact, in this particular case, you didn't do the autopsy and it wasn't your job to determine the cause of death, was it?

A No.

Q And in this particular case, are you going to testify about the cause of death?

A In my opinion, there's no evidence that digoxin toxicity was the cause of his death.

Q That's your opinion; there's no evidence?

A In my opinion, the reasonable degree of medical probability, there's no convincing evidence that Mr. McCormack suffered from digoxin toxicity prior to this death.

Q You know what the burden of proof is in a civil case, Doctor?

MR. MORIARTY: Objection.

Go ahead.

MS. AHERN: Objection.

THE DEPONENT: No. I mean, it's -- I believe it's preponderance of evidence, but I'm not --

Q (By Mr. Ernst) More likely true than not trued?

A Right.

Q Now, Doctor, my question was, do you intend to render an opinion as to the cause of death?

MR. MORIARTY: Objection.

MR. ERNST: And --

MR. MORIARTY: It's in his report.

Q (By Mr. Ernst) And I want to -- I want you to say either you intend to render an opinion as to Mr. McCormack's cause of death or you don't. Do you intend to render an opinion as to his cause of death?

A Yes.

Q And for the record, you believe Mr. McCornack died from what?

A I believe he died from a dysrhythmia caused by his underlying structural cardiac disease.

Q And please state for me what evidence you have.

A That in -- well, in reviewing the autopsy, there's no evidence of a clear other cause. He had no symptoms of digoxin poisoning that would lead me to

believe he died from digoxin poisoning. And in a patient of this age, the most likely cause of death is a primary cardiac arrhythmia when someone with this type of underlying structural heart disease. Essentially, I would say the autopsy excludes the other causes. I don't find evidence of digoxin poisoning. Therefore, the most likely cause is primary arrhythmia from his structural heart disease.

Q Primary cardiac arrhythmia is what you believe he died from?

A Yes.

Q And you have already testified that primary cardiac arrhythmia is a result of digoxin toxicity, true?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

MR. MORIARTY: Go ahead.

THE DEPONENT: Digoxin toxicity may cause a secondary arrhythmia because the digoxin poisoning would be the primary -- or, would be the -- primary arrhythmia implies an arrhythmia caused within the heart. What you're describing would be digoxin poisoning causing an arrhythmia, which would be a secondary arrhythmia.

Q (By Mr. Ernst) And from a clinical standpoint,

can you look at a heart and tell if it's a primary or secondary arrhythmia that caused the death on an autopsy?

A Well, it's certainly an abnormal heart with lymph ventricular hypertrophy or myocardial fibrosis would be suggestive of a primary arrhythmia.

Q Isn't it true that a secondary primary arrhythmia can lead to a primary cardiac arrhythmia?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: Can you restate that, please?

Q (By Mr. Ernst) I'll rephrase it.

A Yeah.

Q Isn't it true, according to your terminology, that a secondary primary arrhythmia can lead -- strike that -- a secondary arrhythmia can lead to a primary cardiac arrhythmia?

MR. MORIARTY: Objection.

THE DEPONENT: Maybe a -- let me see if I can -- so a primary arrhythmia is an arrhythmia that arrives in the heart due to an abnormality in the heart. A secondary arrhythmia is an arrhythmia that arises from an estrogenic cause such as a poisoning.

Q (By Mr. Ernst) All right. Let's clarify the record then seeing as you've clarified it now.

Isn't it true that when you look at a person that has died of a sudden cardiac event, that the person performing the autopsy may not have a reason to differentiate between a secondary arrhythmia and a primary arrhythmia?

A I don't really have an opinion on that.

Q It's true, isn't it, that the death caused -- or, the death that occurred to Mr. McCornack is consistent with digoxin toxicity?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: A -- a person who died of digoxin poisoning would die of a dysrhythmia and would have a -- but would have symptoms of digoxin poisoning prior to their death.

Q (By Mr. Ernst) So the only reason that you're saying that Mr. McCornack didn't die of digoxin toxicity is the lack of symptomatology that you see before death, true?

A So the diagnosis of digoxin poisoning is a clinical diagnosis, and he did not have the clinical diagnosis. He did not have the symptoms -- the constellation of symptoms that constitute digoxin poisoning prior to his death.

Q Does nausea occur every time there's digoxin

toxicity?

A It occurs in the majority of cases. Does it occur -- does anything occur every time? That's -- I mean, the vast majority of patients will complain of nausea.

Q Nausea doesn't occur every time in digoxin toxicity, does it, Doctor?

MR. MORIARTY: Objection; asked and answered. Tell him again.

THE COURT: The vast majority of patients that have digoxin poisoning will have nausea and will feel fatigued. The diagnosis is based on -- is based on those symptoms.

Q (By Mr. Ernst) Did any doctor see Mr. McCornack before he died on the day that he died?

A No.

Q Will a patient know if they have an irregular heartbeat, Doctor?

A Mr. McCornack had noted previously when his heartbeat was irregular.

Q I will re-ask the question. It's true that a person can have an irregular heartbeat and not know it, true?

A Some people can have an irregular heartbeat and not know it.

Q And, in fact, you don't know if Mr. McCornack had an irregular heartbeat on the day that he died, do you?

A I do not.

Q Are you just ignoring the fact that there was a possibility that Mr. McCornack was exposed to a digoxin excessive dose on the day that he died?

MS. AHERN: Objection.

MR. MORIARTY: Objection; form.

THE DEPONENT: I look for the -- look at the clinical evidence. And I don't see any evidence -- or anything that suggests that he was exposed to an excessive dose of digoxin. So I am not ignoring it; I've evaluated the information that's been provided that I've told you -- or that I've provided here, and I see no evidence that he was -- that suggests that he was exposed to an excessive dose.

Q (By Mr. Ernst) You don't think 3 -- a Dig level of 3.6 postmortem is consistent with an excessive dose?

A I don't think it suggests an excessive dose.

Q Is consistent with an excessive dose?

MR. MORIARTY: Objection; form.

THE DEPONENT: It's consistent with a range of doses from therapeutic to supratherapeutic.

Q (By Mr. Ernst) And by supratherapeutic, you mean an excessive dose, don't you?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: It's consistent -- I'm sorry, I wasn't clear. It's consistent with therapeutic dosing. It is consistent with supratherapeutic dosing.

Q (By Mr. Ernst) By supratherapeutic dosing, you're talking about an excessive dose. Isn't that true, Doctor?

A Yes.

MR. MORIARTY: Objection.

MS. AHERN: Objection.

THE DEPONENT: Yes.

Q (By Mr. Ernst) Now, do you intend to do any additional work, Doctor --

MR. MORIARTY: Objection.

Q -- in this case with regard to -- if you have anything that you've been assigned to do in this particular case?

A Nothing that I've been assigned to do.

Q Do you know what the margin of error is in the test that was performed postmortem rendering a 3.6 nanog/mL digoxin?

A That precision of the test?

Q Yes.

A Not offhand.

Q Do you know how long Mr. McCornack took diltiazem before he died?

A No.

Q Do you acknowledge that if a person took a maximum dose of digoxin presents a greater risk for digoxin toxicity?

A Yes.

Q And the closer they are to the digoxin toxicity line, the less that it would take in the form of an additional dose of digoxin to push him into toxic range?

A Can you clarify what you mean by the line?

Q Sure. Would you acknowledge that if a person is being managed with maximum doses of digoxin and that in order to control the arrhythmia of their heart they have a rather high level of digoxin in their system, you'd agree that that's the case in Mr. McCornack's case, wouldn't you?

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: His serum testing previously was in the therapeutic range and not even at the upper -- well, at least the last five I believe was 1.6, the

last tested value. So he's in the therapeutic range -- well within the therapeutic range.

Q (By Mr. Ernst) Right. But, it's the higher therapeutic range?

MR. MORIARTY: Objection.

Go ahead.

MS. AHERN: Objection.

THE DEPONENT: It's in the therapeutic range.

Q (By Mr. Ernst) All right. And would you acknowledge that if there's an additional dose of digoxin that -- to which Mr. McCornack would be exposed, that -- withdraw that.

When Digitek is tested in one's bloodstream, do you know if they're testing peaks or troughs?

A It depends on when the sample is drawn.

Q And what is your understanding of when the sample should be drawn after ingestion of it?

A The ideal sample is a trough sample which would be obtained immediately prior to taking the next dose. So, for example, in a hospital if we were drawing it, we would -- and they took it at 8:00 a.m., we would try to draw the blood at 7:50.

Q The literature basically says it should be taken at least four hours -- a test for blood should be taken at least four hours, sometimes six hours after

ingestion. Do you agree with that?

MR. MORIARTY: Objection.

THE DEPONENT: I would recommend at least six hours. That's the standard recommendation.

Q (By Mr. Ernst) And do you know when Mr. McCornack took his dose of digoxin on the day that he died -- or the evening that he died?

A My understanding is he took it after dinner.

Q Do you know when dinner was?

A I don't. I was told in conversations with Mr. Moriarty that it was approximately 7:00 p.m. based on when the family reported he took his meds.

Q The family reported 6:00 to 8:00 p.m. Were you aware of that?

A Okay. I mean, I -- sure.

Q Now, do you acknowledge that men with a Digitek digoxin level of 1.2 nanog/mL or higher have a higher mortality rate?

MR. MORIARTY: Objection.

MS. AHERN: Objection.

MR. MORIARTY: Go ahead.

THE DEPONENT: Higher than elevated over -- I mean, you have to have a comparative group.

Q (By Mr. Ernst) Okay. Is it accurate to state that when you render the opinions marked in Exhibit 2

that you did not know that the batch of digoxin was -- Mr. McCornack was taking at the time of his death had been recalled?

MR. MORIARTY: Objection.

THE DEPONENT: I was aware that his digoxin had been recalled. Yes, I was aware of that.

Q (By Mr. Ernst) Were you aware that the batch that he specifically taken had been recalled at the time of his death?

MR. MORIARTY: Objection.

Go ahead.

THE DEPONENT: That was my -- my impression was that, yes, he was taking tablets that were in the recall.

Q (By Mr. Ernst) Do you factor that into any of your opinions?

A My -- I mean, my opinion is based on his clinical symptoms and the symptoms that he, you know, exhibited. I did not -- the fact that there are potentially -- well, that he was taking a recalled batch would not affect my opinion as to whether he suffered digoxin poisoning. I'm not concerned whether it was recall; I'm concerned whether he got an excessive dose. And I don't see any evidence that he got an excessive dose.

Q Right. But you obviously didn't talk to Mr. McCornack before his death?

A No.

Q And you've never spoken to his wife or children?

A No.

Q And the only deposition that you've read about that was his wife's? You haven't read the children's deposition, have you?

A No.

Q And, in fact, his wife reported fatigue, some changes in vision, and bloating, true?

A She -- yes.

Q And you discounted those?

MR. MORIARTY: Objection; form.

THE DEPONENT: The symptoms -- the behavior that he exhibited and the symptoms that she reported do not suggest digoxin toxicity.

Q (By Mr. Ernst) That's the only reason that you're saying it wasn't digoxin toxicity, true?

A The diagnosis --

MS. AHERN: Objection.

A The diagnosis of digoxin toxicity is a clinical diagnosis and so it must be made on the symptoms, examination, and the information that's provided to me

doesn't suggest it.

Q Doctor, isn't it true that there are people have reports of digoxin toxicity where people just pass out and die?

MR. MORIARTY: Objection; form.

Go ahead.

THE DEPONENT: The course of chronic digoxin poisoning --

Q (By Mr. Ernst) You can answer that question yes or no, Doctor.

MR. MORIARTY: Objection.

Q (By Mr. Ernst) I don't want a -- I don't want a paragraph. It can be answered yes or no.

MR. MORIARTY: You don't? You kind of sound like me when I'm up against your Mr. Gibson. Are you cutting him off?

MR. ERNST: I am asking him to answer the question.

MR. MORIARTY: Well, I just wondered. I'm just making sure.

I objected to the question because of its form. You may answer his question.

THE DEPONENT: There are reports of patients who allegedly had digoxin poisoning and the report -- first report was that they collapsed and there's not

necessarily documentation that they had symptoms.

Q (By Mr. Ernst) You didn't put that in your report, did you?

A I was asked to comment on the probability, the most probable more likely than not, and it is more likely than not that a patient with digoxin poisoning.

Q You didn't put that in your report, did you?

MR. MORIARTY: Oh, wait, that's a classic cutoff. You didn't even let him finish that answer. So you want to ask -- you want to let him finish his answer?

MR. ERNST: I want him to answer the question.

Q (By Mr. Ernst) You didn't put that back in your report, did you, the fact that the person can suffer sudden cardiac death as a result of digoxin toxicity with no other symptomatology.

MS. AHERN: Object.

Q (By Mr. Ernst) It's not in your report, is it, Doctor?

A No.

MS. AHERN: Objection.

MR. ERNST: I don't have any other questions.

MR. MORIARTY: Okay. I just have one. And I believe it's about Exhibit 9, the stack of articles, okay.

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EXAMINATION

BY MR. MORIARTY:

Q In addition to the stack of articles that Mr. Ernst marked as Exhibit 9, Dr. Heard, did you also bring these books in response to his duces tecum?

A I did.

Q And I'm referring to books that are on the table. One is Baselt's Text, and the other one I believe is Goodman & Gilman, correct?

A Correct.

Q Was there also medical literature attached to some of the depositions that you read as exhibits?

A Yes.

Q Did you read those?

A Yes.

Q And in the course of your career and writing your book chapter and accumulating things on drug toxicity, are there other articles that you have read besides Exhibit 9 about the analysis of postmortem blood samples?

A Yes.

Q That's all I have.

MR. ERNST: Doctor --

MR. MORIARTY: Wait. Hunter gets a turn.

Hunter, do you have any questions.

MS. AHERN: No.

MR. MORIARTY: Okay.

Don, it's your turn again.

EXAMINATION

BY MR. ERNST:

Q The two books that you've brought are Disposition of Toxic Drugs and Chemicals in Man, 4th edition by Baselt and Cravey; and Goodman & Gilman's, The Pharmacological Basis of Therapeutics. Is that true?

A Yes.

Q And you referred to these books in your course and scope of your opinion here?

A Yes.

Q Did you write any of the chapters in these books?

A No.

Q That's all I have. Thank you.

MR. MORIARTY: He's going to read and sign.

COURT REPORTER: Okay. Do I send --

MR. MORIARTY: You can send it directly to him, if you wish, with a copy of your cover letter.

COURT REPORTER: Okay.

MR. MORIARTY: You're going to get a transcript and a separate sheet of paper. You read the transcript. And if there are -- if she made a mistake or you made a mistake -- and I know you made two -- you will make the changes on the sheet. Okay?

MR. ERNST: Have you sent Mr. Moriarty a bill for your time?

MR. MORIARTY: Wait, the deposition's over.

COURT REPORTER: Are we off --

MR. ERNST: Yeah, we're off the record.

(Deposition concluded at 11:06 a.m.)

///

I, KENNON JAMES HEARD, do hereby certify that I have read the foregoing transcript and that the same and accompanying amendment sheets, if any, constitute a true and complete record of my testimony.

_____

Signature of Deponent

( ) no amendments

( ) amendments attached

Subscribed and sworn to before me this ____ day of _____, 2011.

Notary Public: _____

Address: _____

_____

My commission expires:_____

Seal:

REPORTER'S CERTIFICATE

I, Valori D. Weber, reporter, hereby certify that the foregoing transcript consisting of 81 pages is a complete, true, and accurate transcript of the testimony indicated, held on July 14, 2011.

I further certify that this proceeding was recorded by me, and the foregoing transcript has been prepared under my direction.

_____ August 2, 2011

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